

IN THE CLAIMS:

Please revise the claims, as follows:

1. (Currently amended) A method for circuit modification of a microelectronic chip comprising at least one conductor in an organic dielectric, ~~in a manner so that a conductive residue from an ion milling process does not contaminate said organic dielectric sufficiently to electrically disrupt said circuit,~~ said method comprising:

applying a protective inorganic surface layer on said organic dielectric;

forming a window in said protective inorganic surface layer to selectively expose an underlying portion of said organic dielectric, said window located over an area that covers a conductor to be modified by said ion-milling process;

etching said organic dielectric through said window to selectively remove a portion of said organic dielectric adjacent to said conductor to provide a void space in said organic dielectric adjacent to said conductor, ~~thereby precluding a contamination of said organic dielectric that would be sufficient to be disruptive to said circuit and that normally would result if~~ whereby charged ions and residual metal from said ion milling were performed on said conductor without first forming said void will not defeat an electrical isolation of said organic dielectric; and

performing said ion-milling process on said conductor to at least one of remove conductive material from said conductor to open up an existing routing in said circuit and add conductive material to said conductor to form a new routing within said circuit.

2. (Previously presented) The method in claim 1, wherein said ion-milling process done to said conductor comprises at least one of:

- milling said conductor with a focused ion beam;
- milling said conductor with a focused ion beam in the presence of a passivating gas; and
- depositing additional conductor material using an ion-assisted deposition.

3. (Original) The method in claim 1, wherein said etching of said organic dielectric comprises a reactive ion etching.

4. (Previously presented) The method in claim 1, wherein said conductor comprises metal.

5. (Original) The method in claim 4, wherein said metal comprises copper.

6. (Original) The method in claim 1, wherein said protective inorganic surface layer includes an inorganic layer which etches selectively to the organic dielectric.

7. (Previously presented) The method in claim 6, wherein said inorganic layer which etches selectively to the organic dielectric comprises nitride.

8. (Original) The method in claim 1, wherein said window is formed by a focused ion beam.

9. (Withdrawn) The method in claim 1, wherein said window is formed by a mask/resist process.

10. (Original) The method in claim 3, wherein said reactive ion etching uses one of oxygen and an oxygen compound.

11. (Previously presented) The method in claim 2, wherein said passivation gas comprises xenon difluoride.

12. (Currently amended) A method of preparing an electronic chip for a modification process on a conductor thereon, said method comprising:

depositing a protective inorganic surface layer onto an organic dielectric material embedding a conductor that is to be modified by an ion-milling process to at least one of remove conductive material of said conductor to open up a routing in a circuit of said chip and add conductive material to said conductor to form a new routing in said circuit;

forming a window in said protective inorganic surface layer to selectively expose an underlying portion of said organic dielectric material; and

etching said organic dielectric material through said window to selectively remove a portion of said organic dielectric material adjacent to said conductor so that ~~conductive material from~~ said ion-milling process does not ~~leave a conductive residue in~~ defeat an electrical isolation of said organic dielectric material ~~as a result of said ion-milling process~~ that would be sufficient to disrupt said circuit.

13. (Original) The method of claim 12, wherein said etching comprises a reactive ion etching.

14. (Currently amended) A method of manufacturing an electronic device having at least one layer of organic dielectric, said electronic device having at least one conductor in an organic dielectric to be modified by an ion-milling process during said manufacturing, said method comprising:

depositing a protective inorganic surface layer onto said at least one layer of organic dielectric;

forming at least one window in said protective inorganic surface layer to selectively expose an underlying portion of said organic dielectric; and

etching said organic dielectric in an area of said at least one window to selectively remove said organic dielectric adjacent to a conductor to be modified by said ion-milling process so that ~~a conductive residue will not remain in said organic dielectric~~ charged ions and residual metal from said ion-milling process ~~that would provide a sufficient contamination to~~ will not defeat an electrical isolation of said organic dielectric to disrupt an operation of said electronic device,

wherein said modification done by said ion-milling process comprises at least one of removing conductive material from said conductor to create an open circuit in said electronic device and adding conductive material to said conductor to create a new circuit routing in said electronic device.

15. (Original) The method of claim 14, wherein said etching comprises a reactive ion etching.

16. (Previously presented) The method of claim 1, wherein said at least one conductor to be modified and said organic dielectric to be selectively removed are buried below at least one upper layer and said method further comprises successively providing an opening in each of said at least one upper layer.

17-33. (Canceled)

34. (Previously presented) The method of claim 1, wherein said conductor comprises a second conductor underlying a first conductor that at least partially covers said second conductor, said second conductor being exposed after having cut through at least a portion of said first conductor.

35. (Previously presented) The method of claim 1, wherein said window for said etching is sized so that said portion of said organic dielectric adjacent to said conductor that is etched through said window comprises said organic dielectric adjacent to:

a top surface of said conductor facing said window, if any said organic dielectric material exists on said top surface;

any side surfaces of said conductor having said organic dielectric material adjacent thereto; and

a back surface of said conductor, if any said organic dielectric material exists adjacent to said back surface.

36-37. (Canceled)

38. (Previously presented) The method of claim 1, further comprising:

substantially refilling said void space using an insulative material.

39. (Previously presented) The method of claim 38, wherein said substantially refilling said void comprises depositing SiO₂ into said void space.